TABLE 5

	Parent Agarose	Purified Agarose
Gel Str., g/cm^2	1034	1514
Ash, wt %	0.52	0.20
Sulfate, wt %	0.13	0.10
EEO ($-m_r$)	0.09	0.05
Nitrogen, wt %	0.013	0.007
Pyruvate, wt %	0.01	0.003

Agarose was prepared from Gracilaria seaweed by the aluminum hydroxide adsorption method or Bartleing [*Clinical Chemistry,* 15, 1002–1005 (1969)] and analyzed as in Example 1. The product had the following properties:

TABLE 6

Gel Str., g/cm^2	1340
Sulfate, wt %	0.12
EEO ($-m_r$)	0.05

Nitrogen and pyruvate analysis were not carried out-nitrogen because nitrogenous substituents were not introduced; pyruvate because Gracilaria agar does not contain pyruvate. The conductivity of the product was found to be 40 μmhos, corresponding to a salt concentration (as NaCl) of 0.336 mM.

We claim:

1. A dry solid composition capable of forming an aqueous gel useful for rapid electrophoresis, said composition consisting essentially of purified agarose characterized by a sulfate content of less than 0.2 wt % but greater than zero, a pyruvate content of 0–0.1 wt %, and a nitrogen content of 0–0.2 wt %, said gels characterized by a gel strength at 1.0 wt % concentration of at least 1200 g/cm^2, substantial absence of DNA binding in 0.7 M or less tris acetate buffer, and an electroendosmosis at 1.0 wt % concentration of 0.05 or less.

2. The composition of claim **1** wherein the agarose is derived from Gelidium, Gracilaria or Pterocladia agar, or mixtures of two or more thereof.

3. An aqueous gel comprising a gelled solution in water of the composition of claim **2.**

4. The composition of claim **1** wherein the sulfate content is 0.15 wt % or less, the nitrogen content is 0.001–0.02 wt %, and the gel strength is at least 1600 g/cm^2.

5. An aqueous gel comprising a gelled solution in water of the composition of claim **4.**

6. The composition of claim **1** wherein the electroendosmosis is about 0.04 or less.

7. The composition of claim **1** wherein the absence of DNA binding is characterized by substantially no retardation of mobility of 2.03 kb DNA at 22° C. and a voltage gradient of 4 V/cm in a 1.0 wt % gel buffered with 0.07 M or lower concentration of tris acetate.

8. An aqueous gel comprising a gelled solution in water of the composition of claim **7.**

9. The composition of claim **1** wherein the agarose is derived from Gelidium, Gracilaria or Pterocladia agar, or mixtures of two or more thereof, the sulfate content is 0.15 wt % or less, the nitrogen content is 0.001–0.02 wt %, and the gel strength is at least 1600 g/cm^2.

10. An aqueous gel comprising a gelled solution in water of the composition of claim **9.**

11. The composition of claim **1** in particulate form.

12. An aqueous gel comprising a gelled solution in water of the composition of claim **1.**

13. The aqueous gel of claim **12** wherein the composition is present in an amount of from about 0.1 to about 5.0 wt % on total weight of the gel.

14. In a method of electrophoretically separating biological materials in a separation medium, the improvement which comprise employing as the separation medium the aqueous gel of claim **12.**

15. A process for purifying an agarose to provide the composition of claim **1,** comprising dissolving agarose or alkali-modified agar in an aqueous medium buffered at pH of 6.0 to 8.0 and containing no more than 2.0 mM salt as chloride, and precipitating the agarose by contact with a lower alkanol.

16. The process of claim **15** wherein the lower alkanol is isopropanol.

17. The purified agarose prepared by the process of claim **16.**

18. The process of claim **15,** wherein the pH is about 7.2 and the salt content is in the range of 0.003 to 0.8 mM.

19. The process of claim **15** wherein the lower alkanol is isopropanol, the pH is about 7.2, and the salt content is in the range of 0.003 to 0.4 mM.

20. The purified agarose prepared by the process of claim **19.**

21. The process of claim **15** wherein the alkanol is added to the aqueous medium.

22. The purified agarose prepared by the process of claim **21.**

23. The purified agarose prepared by the process of claim **15.**

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